RUTHENIUM SILICIDE DIFFUSION BARRIER LAYERS AND METHODS OF FORMING SAME

Abstract of the Disclosure

A method for use in the fabrication of integrated circuits includes providing a substrate assembly having a surface. A diffusion barrier layer is formed over at least a portion of the surface. The diffusion barrier layer is formed of $RuSi_x$, where x is in the range of about 0.01 to about 10. The barrier layer may be formed by depositing $RuSi_x$ by chemical vapor deposition or the barrier layer may be formed by forming a layer of ruthenium relative to a silicon containing region and performing an anneal to form $RuSi_x$ from the layer of ruthenium and the silicon containing region. Capacitor electrodes, interconnects or other structures may be formed with such a diffusion barrier layer.

"EXPRESS MAIL" MAILING LABEL NUMBER: EL042102592US

DATE OF DEPOSIT: August 27, 1998

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DEVICE STRUCTURES INCLUDING RUTHENIUM SILICIDE DIFFUSION BARRIER LAYERS

Abstract of the Disclosure

A device structure including a substrate assembly having a surface. A diffusion barrier layer is formed over at least a portion of the surface. The diffusion barrier layer is formed of $RuSi_x$, where x is in the range of about 0.01 to about 10. Capacitor electrodes, interconnects or other structures may be formed with such a diffusion barrier layer.